

claims, and Applicant respectfully traverses and requests reconsideration of the rejections in view of the following remarks.

As an initial matter, Applicant thanks the Examiner for his July 19, 2005 voicemail message in which the Examiner clarified that the fourth Office action is not a final Office action and that the “final” indication on Box 2(a) of the Office Action Summary was inadvertently designated.

In the fourth Office action, Applicant was advised of his obligation to inform the Examiner if the joint inventors in the application were not commonly owned at the time of invention. In response, Applicant wants to clarify for the Examiner that the present application does not name joint inventors.

Turning now to the claims, claims 1-17, 20-22, 27-31, 34-58, and 63-73 were rejected under 35 U.S.C. § 103 as being obvious over the cited patents to Mravic '187 in view of West and WO '878. As expressed in the Office action, Mravic discloses a frangible projectile that includes a polymer binder and tungsten or a ferrotungsten component, with Mravic disclosing a thermoset resin as an example of a polymeric binder. The Examiner recognizes the Mravic fails to disclose the inclusion of tin or bronze with a thermoset resin, but cites West and WO '878 as providing this disclosure. Applicant has studied the cited references in view of the pending claims, and Applicant respectfully requests reconsideration of the rejections.

The presently pending claims are directed to fairly specific compositions for firearms projectiles, and methods for forming the same. Applicant recognizes that tungsten-containing lead substitutes existed prior to the priority date of the present application. The cited references disclose but a few of the many references of record that disclose various compositions for firearms projectiles that do not include lead. Some of these references disclose tungsten. Some of the references disclose various metallic or polymeric binders. Mravic actually discloses both metallic and polymeric binders. However, Mravic does so as alternatives to each other. Specifically, hot compacted polymeric binders are disclosed in column 5, while cold-compacted (and thereafter sintered) metallic binders are disclosed in column 6. Therefore, Applicant submits that the cited reference fails to disclose a projectile that includes a firearms projectile formed from a tungsten-containing powder and a binder that includes a metallic binder component and a polymeric binder component.

Perhaps more specifically, claim 1 recites that the at least one projectile of the firearms cartridge includes a binder having a metallic binder component that includes at least 50 wt% tin and a non-metallic binder component that includes at least one of a thermoset resin or epoxy and which comprises 0.25 to 3 wt% of the powder-form composition of matter from which the at least one projectile is formed. Mravic fails to disclose or suggest this specific combination of elements. Furthermore, the selective use of polymeric or metallic binders, but

not both, in Mravic teaches away from the recited subject matter of claim 1. Moreover, the secondary references of West and WO '878 also rely upon compositions that are incompatible with the disclosure of Mravic. For example, West discloses an injection molded polyester matrix into which copper powder is suspended. Therefore, West not only fails to disclose a tungsten-containing lead substitute, but also requires a very high composition of a polymer. In contrast, WO '878 fails to disclose the polymeric binder recited in claim 1 and is directed to frangible projectiles that are substantially different from the projectiles recited in column 5 of Mravic. Accordingly, Applicant respectfully requests reconsideration of the rejection of claim 1, and Applicant submits that the cited references (including any permissible combination thereof) do not disclose or suggest the projectile and/or cartridge recited in claim 1.

Claims 2-14, 16-17, 20-22, 27-31, 34-37, and 72-73 depend from claim 1 and therefore should be allowed when claim 1 is allowed.

With respect to the density of the projectiles, such as recited in claims 2 and 3, Applicant agrees with the Examiner that Mravic recites that lead-substitute should closely approximate the exterior ballistics of a lead bullet of the same caliber and weight. However, this design requirement and the specific disclosure of Mravic's projectiles that include a thermoset binder differ. Specifically, the cited examples in column 5 of Mravic, which were discussed in the Office action, fail to achieve a density that is even 85% of the density of lead.

Applicant submits that the inclusion of tin or bronze is not going to increase the density of these projectiles. Accordingly, Applicant again submits that the selective inclusion of tin or bronze, much less as a metallic binder component, is not properly supported by the cited references.

With respect to the more specific non-metallic binder components recited in claims 27-31, Applicant submits that none of the cited references disclose or render obvious the particular types of non-metallic binder components recited in these claims. Mravic discloses only a thermoset binder. Claim 27 recites an epoxy. Claim 28 recites a flexible epoxy. Claim 29 recites a rigid epoxy. Claim 30 recites both a flexible epoxy and a rigid epoxy. Applicant submits that these specific non-metallic binder components cannot all be disclosed or rendered obvious by Mravic or the other cited references. Accordingly, reconsideration is requested.

Claim 38 is directed to a method for manufacturing a medium-density article, with the method including the use of the tungsten-containing powder, metallic binder component and non-metallic binder component discussed above with respect to claim 1. Accordingly, although claim 38 is not limited to firearms projectiles or cartridges, the reasons expressed above demonstrate that the rejection of claim 38 over the cited references should be withdrawn when the rejection of claim 1 is withdrawn. Claims 39 and 41-58 depend from claim 38 and therefore should be allowed when claim 38 is allowed. Claims 46-47 recite that

the method includes compressing the composition of matter to a density of at least 60 ksi and at least 75 ksi, respectively. In contrast, Mravic discloses only compression to 40 ksi. Applicant submits that compression to a pressure that is at least 50% greater than that disclosed in Mravic is not disclosed or rendered obvious by Mravic. Accordingly, Applicant submits that claims 46-47 should be allowable for at least this additional reason. Claims 57-58 should be allowed for the additional reasons discussed with respect to claims 2-3.

Claim 68 is directed to an unsintered, frangible firearms projectile that includes a tungsten-containing component and a binder that forms less than 30 wt% of the projectile. Claim 68 further recites that the binder comprises at least 70 wt% tin and further includes a flexible heat-curable epoxy that forms at least 0.25 wt% of the projectile. Applicant submits that none of the cited references disclose or suggest such a projectile. For example, none of the references disclose the use of the recited binder, including a binder that includes the recited flexible heat-curable epoxy. Accordingly, Applicant requests reconsideration and withdrawal of the rejection of claim 68. Claims 69-71 and 74-76 depend from claim 68 and therefore should be allowed when claim 68 is allowed.

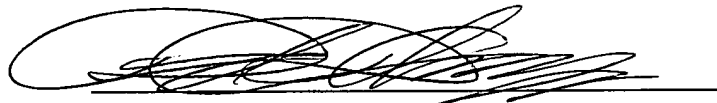
Finally, claims 74-76 were not rejected in the fourth Office action. Accordingly, Applicant requests allowance of claims 74-76.

For at least the above reasons, Applicant submits that all of the issues raised in the fourth Office action have been addressed and overcome. If

there are any remaining issues or if the Examiner has any questions, Applicant's undersigned attorney may be reached at the number listed below. Similarly, if the Examiner believes that a telephone interview may be productive in advancing prosecution of the present application, the Examiner is invited to contact Applicant's undersigned attorney.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'David S. D'Ascenzo', is written over a horizontal line.

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